

Inst. C. E., for his "Description and Drawings of the Victoria Bridge over the River Weser."

A Telford premium of books, suitably bound and inscribed, to David T. Hays, for his paper "On the relative merits of Granite and Wood Pavements, and Macadamised Roads."

A Walker premium of books, suitably bound and inscribed, to Robert Mallett, M. Inst. C. E., for his paper "On the Co-efficient of Labouring-force in Water Wheels, &c."

A Walker premium of books, suitably bound and inscribed, to William John Macquorne Rankine, Assoc. Inst. C. E., for his papers and drawings "On laying down Railway Curves," "On the Spring Contractor for Railway Carriages," and "On the Causes of the Fracture of Railway Axles, &c."

A Walker premium of books, suitably bound and inscribed, to William Lewis Baker, Grad. Inst. C. E., for his "Description and Drawings of the Water Pressure Engine, at the Alte Mörggrube Mine, Frysberg."

A Walker premium of books, suitably bound and inscribed, to Samuel Collett Homersham, Assoc. Inst. C. E., for his paper and drawings "On the Construction of Valves for Pumps, &c."

A Walker premium of books, suitably bound and inscribed, to John Oliver York, Assoc. Inst. C. E., for his paper "On the Comparative strength of Solid and Hollow Axles."

A Walker premium of books, suitably bound and inscribed, to George Daniel Bishop, for his "Description of the American Locomotive Engine, Philadelphia, used on the Birmingham and Gloucester Railway," communicated by Captain W. S. Moorson, Assoc. Inst. C. E.

A Walker premium of books, suitably bound and inscribed, to George Briant Wheeler Jackson, Grad. Inst. C. E., for the drawings illustrating "The Description of Machines for raising and lowering Miners," by John Taylor, M. Inst. C. E.

Session, 1844.

The council invite communications on the following, as well as other subjects, for Telford and Walker Premiums:—

- 1.—On the theory of arches, abutments, and piers, comparing the hypothesis of different writers; with practical examples of the application of the theory.
- 2.—The history of the invention of, and the improvements in, oblique arches, with the theory and practical methods of setting them out.
- 3.—Experiments on the pressure upon every part of an oblique arch, especially how the pressure varies as the angles become oblique.
- 4.—On the construction of retaining and wharf walls, with examples of failure and the causes.

5.—A description of the Canal of the Helder (Holland), or of any foreign engineering works of a similar kind and importance.

6.—The modes of irrigation in use in northern Italy; of drainage adopted in the Lowlands of the United Kingdom; or works of a similar nature in Holland or in other countries.

7.—On any of the principal rivers of the United Kingdom, (the Shannon,) or of foreign countries, (the Po, Italy,) describing their physical characteristics, and the engineering works upon them.

8.—An account of the waste or increase of the load on any part of the coast of Great Britain, the nature of the soil, the direction of the tides, currents, rivers, estuaries, &c., with the means adopted for retarding or preventing the waste of the land.

9.—The principles and practice of constructing river-dams.

10.—The best and most economical mode of raising large stones or rocks from the beds of rivers or harbours.

11.—The application of gunpowder as an instrument of engineering operations.

12.—The conveyance of fluids in pipes, under pressure, and the circumstances which usually affect the velocity of their currents; with accounts of water works and gas works.

13.—The means of rendering large supplies of water available for the purpose of extinguishing fires, and the best application of manual power to the working of fire engines.

14.—The most advantageous method of employing the power of a stream of water, where the height of the fall is greater than can be applied to water wheels of the usual construction.

15.—Experiments on water wheels, steam engines, and other machines, with the friction break.

16.—The construction of cranes for raising and lowering weights.

17.—The proportions of large chimneys, as affecting their draught; with examples and drawings of the construction.

18.—The ventilation of coal pits or mines, in Great Britain or in foreign countries.

19.—The construction of spiral and fan blowing machines, and the power required to drive them, in relation to the pressure and volume of air delivered.

20.—The smelting and manufacture of metals, in Great Britain or in foreign countries.

21.—The comparative advantages of iron and wood, or of both materials combined, as employed in the construction of steam vessels; with drawings and descriptions.

22.—The sizes of steam vessels of all classes, whether river or sea-going, in comparison with their engine power; giving the principal dimensions of the engines and vessels,

draught of water, tonnage, speed, consumption of fuel, &c.

23.—The best forms for river and sea-going steam vessels; with practical examples.

24.—The various modes of propelling vessels in actual or past use, and their comparative merits.

25.—The results of the use of tubular boilers, and of steam at an increased pressure, for marine engines.

26.—On the best application of the principle of expansion to the improvement of the steam engine; with examples of the effect of such application, from actual experiment, and a description of the engines experimented upon.

27.—Description of pyrometers, for ascertaining the degrees and the fluctuations of the temperature of the flues of furnaces, &c.

28.—The various modes for removing earth in railway tunnels, cuttings, or embankments, with the cost thereof.

29.—Observations on the subsidence of embankments, and on slips and cuttings, with practical methods for preventing or remedying them.

30.—Notice of the principal self-acting tools employed in the manufacture of engines and machines, and the effect of their introduction.

31.—Memoirs and accounts of the works and inventions of any of the following engineers:—Sir Hugh Middleton; Arthur Woolf; Jonathan Horrobbrow; Richard Trevithick; William Murdoch (of Soho); and Alexander Nimmo.

Original papers, reports, or designs, of their or other eminent individuals, are peculiarly valuable for the library of the institution.

The communications must be forwarded, on or before the 31st of May, 1844, to the house of the Institution, No. 25, Great George Street, Westminster, where further information may be obtained.

#### DESIGN FOR AN INLAID MARBLE TABLE.

TO THE EDITOR OF THE BUILDER.

SIR,—In No. 43 of your paper a notice was inserted, saying that "A Young Mason," who is making a marble table of different colours, wished to have a design. I have forwarded you one, which, if it be the sort of thing he wishes for, he is quite at liberty to use. My idea has been to imitate the ancient Mosaic works, similar to those in the tomb of Henry III. and the shrine of Edward the Confessor in Westminster Abbey. I would suggest that the brightest marbles, and those having the most contrast, be placed in the Guilloche and borders, and the ground be composed of marbles with less contrast. It is drawn to a scale of 1½ inch to the foot.

I remain, Sir, yours obediently,

JAMES K. COLLINS, B.A.A.D.

